DOCUMENT RESUME

ED 376 184 TM 022 201

AUTHOR Kang, Gyenam Kim; Lee, Yeounwoo
TITLE National College Entrance Examination and Measurement Issues in Korea.
PUB DATE Apr 94
NOTE 15p.; Paper presented at the Annual Meeting of the National Council of Measurement in Education (New Orleans, LA, April 5-7, 1994).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Ability; Achievement Tests; Admission (School); Centralization; *College Entrance Examinations; College Preparation; Educational Research; *Evaluation Methods; Foreign Countries; Higher Education; High Schools; *Item Banks; *Measurement Techniques; National Competency Tests; Scholarly Journals; Standardized Tests; Student Evaluation; *Test Construction; Test Items; Test Use
IDENTIFIERS Korean Society for Educational Evaluation; *South Korea

ABSTRACT

The Korean Society for Educational Evaluation is described, and the national college entrance examination used in Korea is discussed. The Korean Society for Educational Evaluation exists to promote exchange of academic information among members on measurement, statistics, research methodologies, and evaluation. The Society publishes a journal and supports conferences and symposia. A national symposium was held to discuss the new national college entrance examination system in April 1993. College admission has been very competitive in Korea, with only 25% of college preparatory students actually admitted. The Ministry of Education has had control of the college entrance screening system, which traditionally relied on high school grade point average and the college scholastic achievement test. Starting in 1994 a new system will allow colleges to select their own students using a new test of ability and achievement along with grades. The biggest problem regarding the new test is that the item bank has not yet been developed. Issues in item-bank development for Korea are discussed, and the Society of Educational Evaluation asks for help in developing the test as it offers help in other testing endeavors. Three tables outline requirements. The titles and contents of the Journal of Educational Evaluation are appended. (Contains 2 references.) (SLD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 376 184

National College Entrance Examination and Measurement Issues in Korea

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
GYENAM KIM KANG

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Gyenam Kim Kang
Yonsei University

Yeounwoo Lee
Institute for Better Education

Paper Presented at the annual meeting of the National Council on Measurement in Education, New Orleans, LA, April 5, 1994.

TM022201

BEST COPY AVAILABLE

National College Entrance Examination and Measurement Issues in Korea

Gyenam Kim Kang
Executive Secretary of Korean
Society for Educational Evaluation
Department of Education
Yonsei University
Seoul, Korea 120-749

Yeounwoo Lee
Researcher
Institute for Better Education
977-1, Hawangshipri-2-Dong
Sungdong-Gu
Seoul, Korea 133-120

We are presenting two topics. One is the introduction to Korean Society for Educational Evaluation and the other is the National college entrance examination in Korea.

The purpose of Korean Society for Educational Evaluation is to exchange of academic information among members on measurement, statistics, research methodologies and evaluation. Our society was established in 1983 and it is a subcommittee of The Korean society for the Study of Education. We publish 'Journal of Educational Evaluation' twice per year in Korean and the titles of the papers are shown in Table 3. Annual meetings are held two times per year. In the annual meeting, we present our research results. We have workshops twice a year and seminars four times a year. Workshops are held for promoting the spread of theories in the area of measurement, statistics, research methods and evaluation. In seminars, new theories or new Ph.D. dissertations studied deep into a subject were introduced. Workshops on measurement theories, test development, such as item response theory, and on program evaluation were held. We had Seminars on 'generalizability theory', 'Dual scaling methods', 'Structural equation modeling', 'Analysis on multi-level data', etc. We had a national symposium on the new college entrance screening system last April 1993. The title was ' A symposium of Korean Society for Educational Evaluation for rational enforcement of new college entrance screening system'. More than 2,000 peoples including administrators, professors, teachers from all over the country in relation to college entrance screening system attended to the symposium.

Let us introduce the second topic, the national college entrance examination in Korea. In Korea it has been very competitive to enter college. 63% of senior high school students attend liberal high school to prepare college entrance examination and the rest of them attend vocational high school(Korean government, 1993).

Most of the high school students want to go to college but only 25% can be admitted nowadays(Korean government, 1993). Most of the parents also want their children to become college students. While they are studying late for college entrance examination, it is popular that their parents also stay with them until they go to bed. Korean high school students can sleep for four hours a day on the average due to their exam.

In Korea, ministry of education has had control over the college entrance screening system. All the universities and colleges in Korea did not have their own admission policy in selecting new students. Until 1993, college entrance screening data were high school grade point and college scholastic achievement test score which was a national examination. All the students who want to enter college must take the national achievement test at the day determined by Korean government. Their achievement test score was important data along with their high school grade points when they apply to a college for admission. Therefore, high school education in Korea has been focused on obtaining good scores on the college entrance achievement test rather than guiding students in a desirable way.

Korean college entrance screening system has been changed 11 times for the last 47 years as shown in Table 1.

Insert Table 1 about here

A long term plan for the system has not been made. Philosophies and principles for college entrance screening system has not been consistent and the system has been changed only to relieve the apparent problems.

But from 1994, a new college entrance screening system is enforced, which each college selects its own students with three kinds of scores as shown in Table 1. College scholastic abilities test adopted, which is different from college scholastic achievement test. It has both characteristics of achievement test and general abilities test. It is an achievement test since the items are made based on the curriculum in senior high school and is an abilities test because it is more like SAT in U.S.A. in terms of measuring students' potential abilities. In previous college scholastic achievement test, only simple knowledges have been measured. However, general abilities are measured in college scholastic abilities test. College scholastic abilities test consisted of three parts: Verbal, Math & Science, & English. It is a big change to adopt college scholastic abilities test in the sense that Korean students should study in a way to develop their creative thinking rather than memorizing simple knowledges. The new screening system has two objectives, one is to lead high school education up to normal status and the other is to increase self-control abilities of colleges.

Although many measurement theories have been developed to help making good items and tests, not many opportunities to apply them in analyzing the national college entrance examinations has been given yet. One problem arisen in previous college scholastic achievement test and college separate test was that we were not able to apply standardized score and equating methods to optional subjects. The raw scores obtained from tests has been just added to make total scores. The total scores were just ranked from the highest to the lowest. Depending on the number of students to be selected, the cut-off score was determined based on the rank.

In previous college scholastic achievement tests, there have been optional subjects in the area of natural sciences, social sciences, and foreign languages. For example, in 1989 there were 5 optional subjects in the area of foreign languages. They were German, French, Chinese, Japanese, and Spanish. The

averages scores of the applicants for a University, for example, were ranged from 67.16 to 19.4 and their standard deviations were ranged from 13.54 to 19.42 as shown in Table 2. Chinese was the most difficult and German was the easiest. In spite that their averages and standard deviations were not the same, their raw scores were just added to make total scores. It was not obviously fair to add their raw scores, but they did. Furthermore, Korean parents have not tried to understand and adopt standardized scores.

Insert Table 2 about here

Regardless that college scholastic achievement test or abilities test were employed, the biggest problem in relation to national college entrance exam might be that any item bank has not been made yet. The national college entrance exam has been made by National Board of Education Evaluation(NBEE) under the ministry of Education. In order to make national college entrance exam for a particular year, the NBEE should select professors, teachers, and administrators several months ago before the exam date. Those who selected have been kept in a secret place for making tests. While they have been making items, they were not allowed to contact anybody outside. Even after they have finished making all the items, they had to wait until the students have taken the exam. This has been repeated each year. Furthermore, as soon as the exam has been finished, all the items have been published in newspaper and through TV network. It has been customary for 40 years. Therefore, it has not been possible to make item bank yet until today.

Since new items must be made every year, it has been very difficult to make item difficulties the same. The 1994 freshmen had opportunities to take college scholastic abilities tests two times and they submitted higher score between the two. The problem was that in the second exam, item difficulties were lower than the first one. So the ministry of education determined that

from 1995 freshmen, the college scholastic abilities test will be conducted just once.

We need your cooperation to create large and computerized item bank, which must be very sophisticated to fit our country.

Whatever you want any help from our organization, Korean Society of Educational Evaluation, we are willingly ready to help you.

Thank you very much for your attention.

References

Lee, J. S. (1989). An applied study on Item response theory. Yonsei Nonchong, 25, 53-76.

Korean government (1993). Statistical Yearbook of Education. Ministry of education, republic of Korea.

Table 1

The history of college entrance screening system

Year	Screening data adopted
1945 - 1953	Separate college test score
1954	National college scholastic achievement test score or Separate college test score
1955 - 1961	Separate college test score or High school grade point without separate college test (their admission is determined before other students take the separate college test)
1962 - 1963	National college scholastic achievement test score
1964 - 1968	Separate college test score
1969 - 1980	A state-supervised preliminary test score (qualifying high school students for college entrance exam) & Separate college test score
1981	State-supervised preliminary test score & High school grade point
1982 - 1987	National college scholastic achievement test score, High school grade point, & College separate statement test score
1988 - 1993	National college scholastic achievement test score & High school grade point
1994 -	High school grade point - mandatory (at least 40% of the total score), & Any one or all of the following two scores: national college scholastic abilities test score &Separate college test

Table 2

The Score Distribution of Foreign Languages of Applicants for Yonsei University in 1989

Subject	Average	Standard Deviation
German	90.04	14.56
French	87.52	13.54
Chinese	67.16	17.43
Japanese	81.82	19.42
Spanish	87.96	17.88

Total number of Applicants were 14,651
The maximum possible point was 100.
The data were provided by Jong-Sung Lee (1989).

Table 3

The Titles of Journal of Educational Evaluation

Vol.2. No.2.	**October, 1987**
Perspectives and tasks of educational and psychological tests.	Bom-Mo Chung
Perspectives and tasks of intelligence tests.	Ho-Sun Bae
Problems and tasks of aptitude tests.	Jong-Chul Han
Perspectives and tasks of achievement tests.	Suk-Woo Chang
An analysis of goodness of standardized psychological tests.	Jong-Seung Lee
A study on the development of psychological tests.	In-Sup Song
A review of Standardized interests tests.	Yong-Duk Baik
Ethics in the use of psychological tests.	Jae-Eun Kim
Item response theory and its applicability to psychological tests.	Chang-Kyu Ahn
Computer application in psychological tests.	Seong-Ik Park
Vol.3. No.1.	**August, 1989**
Hermemeutic perspective for the studies of educational evaluation.	Sook Hur
An application of anthropological research methods to educational evaluation studies.	Yong-Sook Lee
An analysis of evaluating judgment.	Ho-Soon Bae

Sensitivity of marginal maximum likelihood estimation of item and ability parameters to the characteristics of the prior ability distribution.	Tae-Je Seong
An investigation of item selection techniques for the criterion-reference test.	Jeong-Hwan Kim
An application of information function and relative efficiency to test construction.	Soon-Ok Park
Generalizability coefficient estimation of scientific thinking and research skills tests.	Yang-Boon Kim
An analysis of sources of errors in teacher performances using generalizability theory.	Sung-Sook Kim
The enduring effects of education: Measurement and evaluation.	Soon-Ok Park
The impact of NCA visiting team on junior high/middle schools.	Yoon Lee

Vol.3. No.2. **October, 1989**

Research on the college entrance examination based on measurement-Evaluation points of view.	Ho-Gwan Kim
The conceptualization of college education aptitude examination.	Jong-Seung Lee
Suggestions of improvement on applicability of students' academic rank at high school for college entrance.	Suk-Woo Chang
Problems and methods of paper-pencil test in college entrance examination.	Do-Soon Park
Motor performance test as one of the college entrance examination of physical education areas-problems and its solution.	Sang-Jo Kang

Problems and methods of an oral test on college entrance examination. — Chang-Jin Byeon

A critical review on the test construction and utilization of the national university and college entrance examination. — In-Jae Lim

The assessment of the effects of school districts in Seoul on students' success in college entrance examination. — Bu-Kwon Park

Vol.4. No.1. **March, 1991**

Multilevel data analysis: A comparative examination of analytical alternatives. — Kyung-Sung Kim

Gender and OTL effects on mathematics achievements for U.S. SLMS 12th grade students. — Suk-Woo Kim

Statistical classification of item -response patterns into mis conception groups in rule space. — Sung-Hoon Kim

A study on development and validation of self-concept Q-set. — Joon-Kwon Kim

Korean students' causal attributions for academic achievement and learning motivation process. — Young-Shin Park

A synthesis study of nonquantitative program evaluation results. — Sung-Sam Oh

Multilevel models for longitudinal school-effect research. — See-Hyuck Im

Vol.5. No.1.	April, 1992
Multiple comparison of means applied in simple repeated measures design.	Gye-Nam Kang
An anlysis of sources of variation in an observational system: A comparison of observer agreement, interrater stability, generalizability.	Sung-Sook Kim
The relationship between reliability and power in research designs.	Hyun-Woong Bae
Computer based testing and computer adaptive testing.	Tae-Je Seong
A comparison of composite scores of long and short editions of the same test battery.	Myung-Hee Yun
Vol.5. No.2.	**October, 1992**
An evaluation study on the validity of instrument for identifying the scientifically gifted by item response theory - focused on the logical thinking test.	Yang-Boon Kim
A comparative study of the robustness of traditional and IRT test equating methods with varying item parameters.	Heyon-Woo Nam
A study of item bias in national college entrance examination.	Boo-Il Cho
A critique on the inclusion of evaluation on affective behaviors into the high school GPA for university entrance.	Sung-Hoon Kim
Meta-analysis method and basic meta-analysis.	Sung-Sam Oh
A monte carlo study of alternative estimation in structural equation modeling.	Ki-Jong Rhee

Vol.6. No.1. **April, 1993**

A study on the validation of KEDI-WISC: an application factor analysis. Suk-Woo Kim & Hae-Ik Hwang

The theoretical probe of the evaluator's roles and utilization in organizations. Ki-Jong Rhee

Effects of missing values in multiple-choice data on dual scaling results. Hyung Im

Empirical investigation of the Mantel-Haenszel procedure. Shin-Young Kim

A comparative study between the Raju's method and the Mantel-Haenszel's method for differential item function. Tae-Je Seong

Factors affecting the difficulty of phoneme identification. Eun-Lim Chi

Assessing the dimensionality of achievement test response data. Myung-Hee Yun

Methods for equating test score. Jong-Seung Lee

A study on methods for assessing the assumption of unidimensionality. Suk-Ki Shin

Appendix: A brief history of Korean Society for Educational Evaluation. Gye-Nam Kang

Vol.6. No.2. **October, 1993**

Multiple comparison procedures with an emphasis on sequentially rejective Bonferroni tests and their geometric presentation. Gye-Nam Kim

The current status of the national assessment of educational progress in the U.S.A. Yang-Boon Kim

The effects of multidimensionality on the estimation of item parameters and on IRT test equating.	Heyon-Woo Nam
Statistical methods for detecting item and test bias.	Jeong-Soo Park & Seok-Zoon Roh
An investigating of changes of the reliability coefficient and the test information by varying the number of items, item discriminations, and item difficulty.	Tae-Je Seong & Kyung-Hee Kim
The reliability and validity of the data for college entrance screening.	Yeoun-Woo Lee & Jong-Sung Lee
A comparative analysis of item statistics using the classical test theory and item response theory.	Yeoun-Woo Lee
Partial credit model for scoring supply-type items.	Eun-Lim Chi
Detecting gender differently functioned items of the tryouts of college scholastic test.	Jeong-Ah Choo & Tae-Je Seong
Equating the item characteristics and examinee ability of the sixth, the seventh tryouts of college scholastic ability test.	So-Lim Hwang